CLAIMS

1. (original) A method of packaging a sensor comprising a flexural resonator, the method comprising:

affixing a flexural resonator, having an exposed sensing surface, to a platform, wherein a spaced relationship is created between the exposed sensing surface and the platform so that the exposed sensing surface of the flexural resonator can displace a fluid in contact therewith;

affixing an application specific integrated circuit (ASIC) to the platform,

providing electrical communication between ASIC and the flexural resonator for providing stimulus to the flexural resonator and for receiving a response signal from the flexural resonator;

affixing a secondary component positioned independently from the ASIC on the platform, the secondary component being selected from a temperature sensor, a field programmable gate array, a calibration unit, a conductive path, a resistor, a capacitor, an amplifier, a filter, and combinations of two or more thereof, and

optionally providing electrical communication between the ASIC and the secondary component.

2. (original) The method of claim 1, further including applying a protective layer covering the platform and the flexural resonator while maintaining the exposed sensing surface such that the exposed sensing surface can displace the fluid in contact therewith.

3. (original) The method of claim 2, wherein the protective layer is selectively applied by spraying, brushing, over molding, laminating or by combinations thereof.

4. (presently amended) The method ~~according to any of claims 2 or~~ of claim 3, further including blocking the exposed sensing surface with a removable protective barrier prior to applying the protective layer.

5. (presently amended) The method ~~according to any of claims 2~~ of claim 4, wherein the removable protective barrier is a reusable or consumable barrier.

6. (presently amended) The method ~~according to~~ of claim 5, wherein the removable protective barrier is a consumable barrier that comprises a polymer, starch, wax, salt or other dissolvable crystal, low melting point metal, a photoresist, or another sacrificial material.

7. (presently amended) The method ~~according to~~ of claim 5 wherein the removable protective barrier is a reusable barrier that comprises a relatively soft material that will not plastically deform the flexural resonator if it contacts the flexural resonator.

8. (presently amended) The method ~~according to any of claims~~ of claim 1~~-7~~, further including at least partially protecting the flexural resonator from the ambient or operational conditions through the use of a housing.

9. (presently amended) The method ~~according to any of claims~~ of claim 1~~-8~~, further comprising operating the flexural resonator at temperatures between about –60°C and about 300°C.

10. (presently amended) The method ~~according to any of claims 1-8~~ of claim 9, further comprising operating the flexural resonator at temperatures between about –40°C and about 170°C.

11. (presently amended) The method ~~according to any of claims~~ of claim 1~~-10~~, wherein the flexural resonator affixed to the platform has a length or width smaller than about 5 mm.

12. (presently amended) The method ~~according to any of claims 1-10~~ of claim 11, wherein the flexural resonator affixed to the platform has a length or width smaller than about 1 mm.

13. (presently amended) The method ~~according to any of claims~~ of claim 1~~-12~~, wherein the package has a volume of about less than about 15 cm^3.

14. (presently amended) The method ~~according to any of claims 1-12~~ of claim 13, wherein the package has a volume of about less than about 10 cm^3.

15. (presently amended) The method ~~according to any of claims~~ of claim 1~~-14~~, wherein the package has a footprint of about less than about 40 cm^2.

16. (presently amended) The method ~~according to any of claims 1-14~~ of claim 15, wherein the package has a footprint of about less than about 20 cm^2.

17. (presently amended) The method ~~according to any of claims~~ of claim 1~~-16~~, further comprising at least partially preserving electrical characteristics of the flexural resonator through the use of a Faraday cage.

18. (presently amended) The method ~~according to any~~ of claim 1~~-17~~, further comprising placing the package in an engine, a transmission, a transfer case, a differential, a brake system, a steering system, an antifreeze system, a heating and cooling system, a washer system, or combinations thereof.

19. (presently amended) The method ~~according to any of claims~~ of claim 1-~~18~~, further comprising placing the package in a lubricant, a brake fluids, a steering fluid, an antifreeze fluid, a refrigerant fluid, a washer fluid, or combinations thereof.

20. (presently amended) A package for protecting a sensor comprising a flexural resonator, the package comprising:

a flexural resonator on a platform, the flexural resonator having one or more exposed sensing surfaces in spaced relationship to the platform so that the exposed sensing surface can displace a fluid in contact therewith to determine one or more characteristics of the fluid,

an application specific integrated circuit (ASIC) on the platform, the ASIC being in electrical communication with the flexural resonator for providing stimulus to the flexural resonator and for receiving a response signal from the flexural resonator, and

a secondary component positioned independently from the ASIC on the platform, the secondary component being selected from the group a temperature sensor, a field programmable gate array, a calibration unit, a conductive path, a resistor, a capacitor, an amplifier, a filter, and combinations of two or more thereof, the secondary component being in optional electrical communication with the ASIC.

21. (presently amended) The package of claim 20, further comprising a housing spaced from the exposed sensing surface.

22. (presently amended) The package of ~~claims~~ claim 21 wherein the housing includes a plurality of walls that substantially surround the flexural resonator while maintaining exposure of the exposed sensing surface to the fluid.

23. (presently amended) The package ~~according to any of claims~~ of claim 20-~~22~~ wherein the ASIC comprises a temperature sensor, or wherein the secondary component comprises a temperature sensor.

24. (presently amended) The package ~~according to any of claims~~ of claim 20~~-23~~ further comprising a protective layer covering the flexural resonator and the platform while maintaining the exposed sensing surface such that the exposed sensing surface can displace the fluid in contact therewith.

25. (presently amended) The package ~~according to any~~ of claim 24 wherein the protective layer covers, partially or completely, the ASIC or the secondary component.

26. (presently amended) The package ~~according to any of claims~~ of claim 20~~-25~~ wherein the flexural resonator is capable of operating at temperatures between –60°C and 300°C~~.~~.

27. (presently amended) The package ~~according to any of claims 20-25~~ of claim 26 wherein the flexural resonator is capable of operating at temperatures between –40°C and 170°C.

28. (presently amended) The package ~~according to any of claims~~ of claim 20~~-27~~ wherein the flexural resonator on the platform has a length or width smaller than 5 mm.

29. (presently amended) The package ~~according to any of claims 20-27~~ of claim 28 wherein the flexural resonator on the platform has a length or width smaller than 1 mm.

30. (presently amended) The package ~~according to any of claims~~ of claim 20~~-29~~ wherein the package has a volume of about less than 15 cm^3.

31. (presently amended) The package ~~according to any of claims 20-29~~ of claim 30 wherein the package has a volume of about less than about 10 cm^3.

32. (presently amended) The package ~~according to any of claims~~ of claim 20-~~31~~ wherein the package has a footprint of less than about 40 cm^2.

33. (presently amended) The package ~~according to any of claims 20-31~~ of claim 32, wherein the package has a footprint of about less than about 20 cm^2.

34. (presently amended) The package ~~according to any of claims~~ of claim 20-~~33~~ wherein the flexural resonator is selected from tuning forks, cantilevers, bimorphs, or unimorphs, membrane resonators, or torsional resonators.

35. (presently amended) The package ~~according to any of claims~~ of claim 20-~~34~~ wherein in the package is adapted for use in engines, automobiles, heavy machinery, military equipment, airplane parts, oil drilling, exploration and production well logging, oil refining, pipeline and quality control equipment, marine transportation, or sub-sea exploration and aerospace related equipment.

36. (presently amended) The package ~~according to any of claims~~ of claim 20-~~35~~ further comprising a Faraday cage.

37. (presently amended) The package ~~according to any of claims~~ of claim 20-~~36~~ wherein the package is adapted for use in an engine, a transmission, a transfer case, a differential, a brake system, a steering system, an antifreeze system, a heating and cooling system, and a washer system.

38. (presently amended) The package ~~according to any of claims~~ of claim 20-~~37~~ wherein the package is adapted for use in lubricants, brake fluids, steering fluids, antifreeze fluids, refrigerant fluids, and washer fluids.

39. (presently amended) The package ~~according to any of claims~~ 20-~~38~~ wherein the flexural resonator is a tuning fork.

40. (presently amended) The method ~~according to any of claims~~ of claim 1-~~19~~ wherein the flexural resonator is a tuning fork.